

## WHAT IS CLAIMED IS:

1. A dynamoelectric machine comprising a stator and a rotor, and at least one of the stator and rotor having a core structure comprising:

a plurality of magnetic laminations spaced axially along the core structure;

a plurality of through holes passing axially through the laminations;

an insulated core stud passing through each of the through holes, the insulated core stud comprising opposing ends, a central shaft portion, and a first layer of heat shrinkable tubular insulation shrunk fit onto and covering at least a portion of the central shaft portion of the core stud that passes through the laminations; and,

nuts secured to the opposing ends of the insulated core studs whereby the nuts and core studs provide axial tightness of the core structure.

2. The dynamoelectric machine of claim 1 wherein the insulated core stud further comprises at least one second layer of heat shrinkable tubular insulation shrunk fit onto and covering at least a portion of the first layer of heat shrinkable tubular insulation that passes through the laminations.

3. The dynamoelectric machine of claim 2 wherein the core stud central portion has a first outside diameter, the first layer of heat shrinkable tubular insulation comprises a first tubular member of insulation having a first inside diameter at least equal to that of the first outside diameter of the core stud central portion, the first tubular member having a second outside diameter, and at least one second layer of heat shrinkable tubular insulation comprises a second tubular member of insulation having a second inside diameter greater than the first inside diameter of the first tubular member and at least equal to the second outside diameter of the first tubular member when the first tubular member is shrunk fit onto the core stud central portion.

4. The dynamoelectric machine of claim 2 wherein the core structure further comprises first and second end plates disposed on axially opposite ends of the laminations that have through holes through which the core studs pass, the nuts being tightened to cause the end plates to axially tighten the core structure.

5. The dynamoelectric machine of claim 4 wherein the first and second layers of insulation cover portions of the core studs that pass through the end plates.

6. The dynamoelectric machine of claim 2 wherein the core structure further comprises stepped laminations on either end of the plurality of laminations, finger plates each located on axially outer sides of the stepped laminations, end plates each positioned on axially outer sides of a respective finger plate, each of the stepped laminations, end finger plates and end plates having the through holes extending there through and through which the core studs pass, and the nuts being tightened to cause the end plates to axially tighten the core structure.

7. The dynamoelectric machine of claim 6 wherein the first and second layers of heat shrinkable tubular insulation cover portions of the core studs that pass through the stepped laminations, the finger plates and the end plates.

8. The dynamoelectric machine of claim 7 wherein the core stud central portion has a first outside diameter, the first layer of heat shrinkable tubular insulation comprises a first tubular member of insulation having a first inside diameter at least equal to that of the first outside diameter of the core stud central portion, the first tubular member having a second outside diameter, and the second layer of heat shrinkable tubular insulation comprises a second tubular member of insulation having a second inside diameter greater than the first inside diameter of the first tubular member and at least equal to the second outside diameter of the first tubular member when the first tubular member is shrunk fit onto the core stud central portion.

9. An insulated core stud for use in the core structure of at least one of a stator and a rotor of a dynamoelectric machine having a plurality of magnetic laminations spaced axially along the core structure and a plurality of through holes passing axially through the laminations, the insulated core stud being adapted to pass through each of the through holes and comprising:

a central shaft portion and a first layer of heat shrinkable tubular insulation shrunk fit onto and covering at least a portion of the central shaft

portion of the core stud that passes through the laminations.

10. The insulated core stud of claim 9 further comprising at least one second layer of heat shrinkable tubular insulation shrunk fit onto and covering at least a portion of the first layer of heat shrinkable tubular insulation that passes through the laminations.

11. The insulated core stud of claim 10 wherein the core structure further comprises stepped laminations on either end of the plurality of laminations, finger plates each located on axially outer sides of the stepped laminations, end plates each positioned on axially outer sides of a respective finger plate, each of the stepped laminations, end finger plates and end plates having the through holes extending there through and through which the core studs pass, and the nuts being tightened to cause the end plates to axially tighten the core structure.

12. The insulated core stud of claim 10 wherein the core structure further comprises first and second end plates disposed on axially opposite ends of the laminations and the first and second layers of insulation cover portions of the core studs that are adapted to pass through the end plates.

13. The insulated core stud of claim 10 wherein the core structure further comprises stepped laminations on either end of the plurality of laminations, finger plates each located on axially outer sides of the stepped laminations, end plates each positioned on axially outer sides of a respective finger plate, each of the stepped laminations, end finger plates and end plates having the through holes extending there through, and the first and second layers of insulation cover portions of the core studs that are adapted to pass through the stepped laminations, the finger plates and the end plates.